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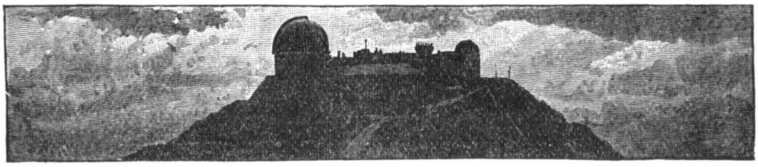

NOTICES FROM THE LICK OBSERVATORY.

PREPARED BY MEMBERS OF THE STAFF.

THE ROTATION OF THE MOON ON ITS AXIS.

[From YOUNG'S *General Astronomy*, 1889, page 154.]

The LICK Observatory regularly receives letters of inquiry relating to the question of the Moon's rotation; and in reply regularly refers the inquirer to YOUNG'S *General Astronomy*, as above. It will probably not be thought a waste of space to reprint the two paragraphs and figures referred to. The essence of the question is contained in the second paragraph—the definition of rotation. E. S. H.

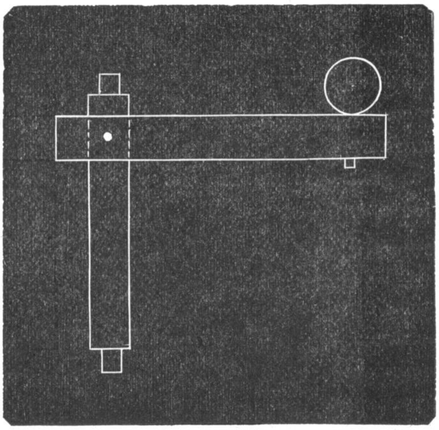

Fig. 79.

ROTATION OF THE MOON.

"The moon rotates on its axis once a month, in precisely the same time as that occupied by its revolution around the earth. In the long run it therefore keeps the same side always towards the earth: we see to-day precisely the same face and aspect of the moon as GALILEO did when he first looked at it with his telescope, and the same will continue to be the case for thousands of years more, if not forever.

It is difficult for some to see why a motion of this sort should be considered a *rotation* of the moon, since it is essentially like the motion of a ball carried on a revolving crank. See *Fig. 79.* Such a ball, they say, '*revolves* around the shaft, but does not *rotate* on its own axis.' It does rotate however. The shaft being vertical and the crank horizontal, suppose that a compass needle be substituted for the ball, as in *Fig. 80.* The pivot turns underneath it as the crank whirls, but the compass needle does not rotate, maintaining always its own direction with the marked end north. On the other hand, if we mark one side of the ball (in the preceding figure), we shall find the marked side presented successively to every point of the compass as the crank revolves, so that the ball as really turns on its own axis as if it were whirling upon a pin fastened to a table. The ball has *two* distinct motions by virtue of its connection with the crank: *first*, the motion of translation, which carries its center of gravity, like that of the compass needle, in a circle around the axis of the shaft; *secondly*, an additional motion of rotation around a line drawn through its center of gravity parallel to the shaft.

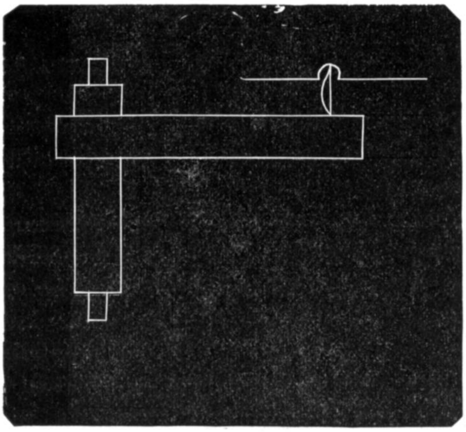

Fig. 80.

DEFINITION OF ROTATION.

A body '*rotates*' whenever *a line drawn from its center of gravity outward, through any point selected at random in its mass,* *describes a circle in the heavens.* In every rotating body, one such line can be so drawn that the circle described by it in the sky becomes infinitely small. This is the *axis* of the body. Another set of points can be found such that lines drawn from the center of gravity outward through *them* describe a great circle in the sky 90° distant from the point pierced by the axis, and these points constitute the *equator* of the body.''

SCIENTIFIC VISITORS TO THE LICK OBSERVATORY.

(Dr. S. P. LANGLEY, Prof. VIOLLE, Colonel DEFFORGES, Mr. SERVISS, Doctors LUMMER, KURLBAUM, PRINGSHEIM, LINDECK and WEDDING.)

During September and early October we have had the pleasure of visits from many astronomers and physicists of distinction. Dr. LANGLEY, Director of the Smithsonian Institution was with us for several days; Colonel DEFFORGES made a determination of the force of gravity here (the fourth dermination: see these *Publications*, Vol. I, p. 125; III, p. 282; IV, p. 266) and was accompanied by Professor VIOLLE; Mr. SERVISS, Director of the American *Urania*, Doctors LINDECK and WEDDING were here for short times; and Doctors LUMMER, PRINGSHEIM and KURLBAUM came as representatives of the *Reichsanstalt*. The Astronomical Congress of Chicago has done the LICK Observatory a great service by sending some of its delegates here for an additional and informal session. E. S. H.

STABILITY OF THE GREAT EQUATORIAL, 1888-1893.

Observations for the position of the great telescope have been made by Messrs. SCHAEBERLE, KEELER, CAMPBELL and TUCKER as below:

1888, July 27, azimuth = + 36″; level = 8″ too low.
1889, May 18, " = ... ; " = 36 " "
Sept. 16, " = + 83 ; " = 58 " "
1890, Aug. 23, " = (+54); " = 114 " "
Telescope adjusted.
1891, June 30, azimuth = ... ; level = 35″ too low.
Holding-down bolts tightened.
1892, Aug. 5, azimuth = + 51″; level = 25″ too high.
1893, Sept. 23, " = + 48″; " = 57″ " low.

E. S. H.